

## ABSTRACT OF THE DISCLOSURE

5 A computer system employs virtual channels and allocates different resources to  
the virtual channels. Packets which do not have logical/protocol-related conflicts are  
grouped into a virtual channel. Accordingly, logical conflicts occur between packets in  
separate virtual channels. The packets within a virtual channel may share resources (and  
hence experience resource conflicts), but the packets within different virtual channels  
may not share resources. Since packets which may experience resource conflicts do not  
10 experience logical conflicts, and since packets which may experience logical conflicts do  
not experience resource conflicts, deadlock-free operation may be achieved.  
Additionally, each virtual channel may be assigned control packet buffers and data packet  
buffers. Control packets may be substantially smaller in size, and may occur more  
frequently than data packets. By providing separate buffers, buffer space may be used  
15 efficiently. If a control packet which does not specify a data packet is received, no data  
packet buffer space is allocated. If a control packet which does specify a data packet is  
received, both control packet buffer space and data packet buffer space is allocated.